

**PSP Cover Sheet** (Attach to the front of each proposal)Proposal Title: Pilot Demonstration of Passivation Technology for Restoration of Newton Copper MineApplicant Name: Board of Regents, UCCSN For University of Nevada, RenoAdministrative Contact: Mary HusemollerMailing Address: University of Nevada, Reno, MS 325, Reno, NV 89557-0240Telephone: 775-784-4040Fax: 775-784-6680Email: maryh@unr.eduAmount of funding requested: \$ 614,928

Some entities charge different costs dependent on the source of the funds. If it is different for state or federal funds list below.

State cost \_\_\_\_\_

Federal cost \_\_\_\_\_

**Cost share partners?**Y e s X No

Identify partners and amount contributed by each \_\_\_\_\_

**Indicate the Topic for which you are applying (check only one box).**

- |  |   |
|--|---|
| <input type="checkbox"/> Natural Flow Regimes                | <input type="checkbox"/> Beyond the Riparian Corridor               |
| <input type="checkbox"/> Nonnative Invasive Species          | <input type="checkbox"/> Local Watershed Stewardship                |
| <input type="checkbox"/> Channel Dynamics/Sediment Transport | <input type="checkbox"/> Environmental Education                    |
| <input type="checkbox"/> Flood Management                    | <input type="checkbox"/> Special Status Species Surveys and Studies |
| <input type="checkbox"/> Shallow Water Tidal/ Marsh Habitat  | <input type="checkbox"/> Fishery Monitoring, Assessment & Research  |
| <input checked="" type="checkbox"/> Contaminants             | <input type="checkbox"/> Fish Screens                               |

What county or counties is the project located in? AmadorWhat CALFED ecozone is the project located in? See attached list and indicate number. Be as specific as possible 11 Eastside Delta Trib (Mokelumne River)

Indicate the type of applicant (check only one box):

- |  |   |
|--|---|
| <input type="checkbox"/> State Agency                    | <input type="checkbox"/> Federal agency |
| <input type="checkbox"/> Public/Non-profit joint venture | <input type="checkbox"/> Non-profit     |
| <input type="checkbox"/> Local government/district       | <input type="checkbox"/> Tribes         |
| <input type="checkbox"/> University                      | <input type="checkbox"/> Private party  |
| <input type="checkbox"/> Other: _____                    |   |

**Indicate the primary species which the proposal addresses (check all that apply):**

- |   |  |
|---|--|
| <input type="checkbox"/> San Joaquin and East-side Delta tributaries fall-run chinook salmon                            | <input type="checkbox"/> Spring-run chinook salmon |
| <input type="checkbox"/> Winter-run chinook salmon  | <input type="checkbox"/> Fall-run chinook salmon   |
| <input type="checkbox"/> Late-fall run chinook salmon   | <input type="checkbox"/> Longfin Smelt             |
| <input type="checkbox"/> Delta smelt  | <input type="checkbox"/> Steelhead Trout           |
| <input type="checkbox"/> Splittail  | <input type="checkbox"/> Striped bass              |
| <input type="checkbox"/> Green sturgeon   | <input type="checkbox"/> All chinook species       |
| <input type="checkbox"/> White sturgeon   | <input type="checkbox"/> All anadromous salmonids  |
| <input checked="" type="checkbox"/> Waterfowl and Shorebirds  | <input type="checkbox"/> Americanshad              |
| <input checked="" type="checkbox"/> Migratory birds   |  |
| <input checked="" type="checkbox"/> Other listed T/E species: <u>California Red-Legged Frog and Western Pond Turtle</u> |  |

**Indicate the type of project (check only one box):**

- |  |   |
|--|---|
| <input type="checkbox"/> Research/Monitoring           | <input type="checkbox"/> Watershed Planning |
| <input checked="" type="checkbox"/> Pilot/Demo Project | <input type="checkbox"/> Education          |
| <input type="checkbox"/> Full-scale Implementation     |   |

Is this a next-phase of an ongoing project? Yes X No         
Have you received funding from CALFED before? Yes        No X

If yes, list project title and CALFED number n/a

Have you received funding from CVPIA before? Yes        No X

If yes, list CVPIA program providing funding, project title and CVPIA number (if applicable):

n/a

**By signing below, the applicant declares the following:**

- The truthfulness of all representation in their proposal;
- The individual signing the form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or organization); and
- The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section 2.4) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

**BD. OF REGENTS, UCCSN, FOR  
UNIV. OF NEVADA, RENO**

Mary B. Husemoller  
Printed name of applicant

Mary B. Husemoller  
Signature of applicant

Mary B. Husemoller, Director  
Sponsored Projects Administration

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May 12, 2000

CALFED Bay-Delta Program Office  
1416 Ninth Street #1155  
Sacramento, CA 95814

**Re: "Pilot Demonstration of Passivation Technology for Restoration of Newton  
Copper Mine," Misra, OSPA #2000797**

To Whom It May Concern:

Enclosed please find the required number of copies for the above referenced project under the direction of Manoranjan Misra. For the period of April 1, 2001 through March 31, 2003, monies in the amount of \$614,928.00 are requested.

Please note we reserve the right at this time to negotiate any additional terms and conditions, other than those already noted. As a public university, Nevada state law on many issues limits us. **Also** any awards that may be forthcoming from this proposal must be issued and mailed to our legal title, address and to the attention of our authorized representative as follows:

**Board of Regents, UCCSN, obo the  
University of Nevada, Reno  
OSPAs / MS 325  
Reno, NV 89557-0240  
Attn: Mary B. Husemoller, Director, OSPA**

For questions of a technical or program nature, please contact Dr. Misra. For contractual questions, please contact this office and *refer to our P.I. and OSPA number.*

Sincerely,



Liz Greb

Sponsored Projects Administration

Encl:

**Distribution:**

Master

OSPAs

M.Misra

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## **ATTACHMENTS**

Letters of Support  
Environmental Compliance & Land Use Checklists  
Compliance Forms  
Proof of Contractors License  
Non-Collusion Affidavit  
Bidders Bond  
Standard Federal Form 424

## PROPOSAL

### Large-Scale Pilot Demonstration of Passivation Technology For Restoration of Newton Copper Mine

Submitted **To:** CALFED Bay-Delta Program Office  
**1416** Ninth Street, Suite **1155**  
Sacramento, CA **95814**

Applicant: Board of Regents, UCCSN  
For University of Nevada, Reno  
~~Attn:~~ Mary B. Husemoller  
Director, Sponsored Project Administration  
University of Nevada, Reno (**MS 325**)  
Reno, Nevada **89557**

Project Director: Dr. Manoranjan Misra  
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## EXECUTIVE SUMMARY

The thrust of this proposal is to conduct an on-site full-scale pilot demonstration of passivation technology for remediation and restoration of an inactive acid-generating Newton Copper Mine site. The pilot program is proposed on the basis of extensive laboratory test work conducted at the University of Nevada, Reno using a patented passivation process on Newton Mine tailings. Both short-term and long-term experimental work has shown that the passivation process is uniquely suitable for controlling acid, as well as inhibiting metal dissolution. The passivation process uses innocuous, fixative chemicals to form a stable coating on the reactive and acid-generating materials.

The Newton Copper Mine site is located in an ecologically sensitive area. It is adjacent to Highway 88, which is five miles from the city of Jackson, California in Amador County. The site is easily accessible for the pilot operation, data collection, and monitoring. A highly qualified team of experts from different organizations has been assembled to conduct and assist in the investigation. The University of Nevada, Reno, the owner of the passivation process, will be in charge of the project. The research collaborators include: 1) the owners of the Newton Mine; 2) Cherokee Chemical Co., Inc.; and 3) COUNSELTECH, Inc. In addition, the Department of Conservation, the Office of Mine Reclamation, and Amador County will be available as consultants.

The demonstration pilot operation will be conducted at the Newton Mine site using three engineered and controlled pads. One pilot pad will be a controlled pad, and the other two will be the passivation demonstration pads. Each pad will be lined with 60 mil HDPE geomembrane and a single-sided geocomposite drainage layer. Each pad will be equipped with 18-30 spray stations. Only a lime neutralization process will be used in the controlled pad. One of the passivation demonstration pads will be injected with magnesium oxide slurry (UNR-process), and the other with a dilute basic permanganate solution in conjunction with magnesium oxide (DuPont process). The solution will be injected through irrigation channels. Leachate samples will be collected from the three pads at different heights and locations to determine the effectiveness of the process.

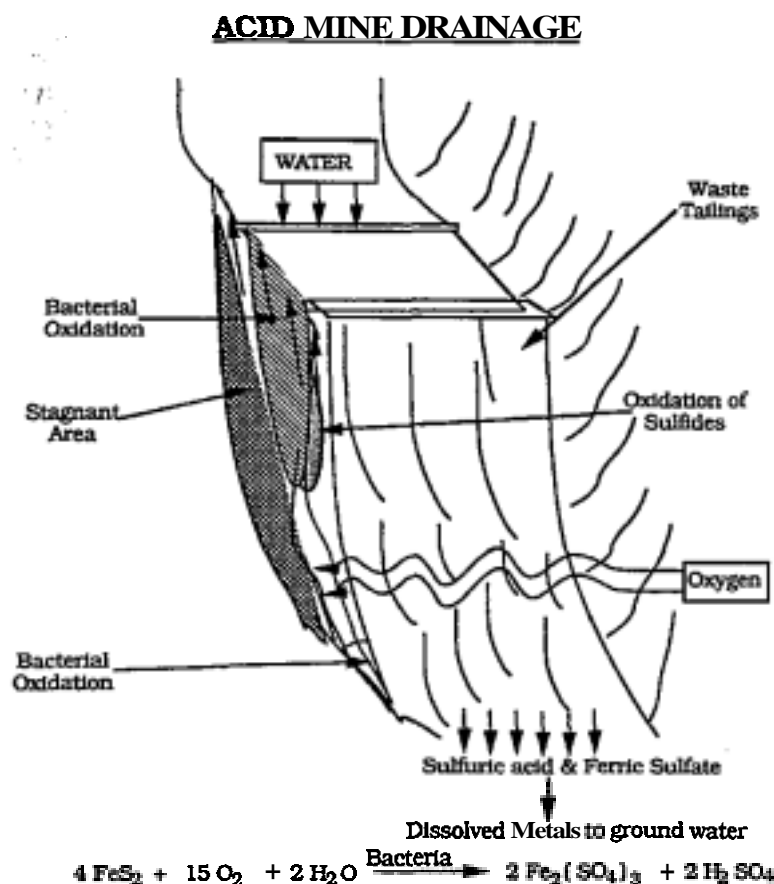
The controlled and demonstration pilot pads will be monitored for pH and dissolved metals for a period of twelve months. After that remediated pads will be restored and monitored for an additional twelve months. In addition to the above parameters, other variables such as solution migration, channeling, effect of weathering, and any possible role of chemical activity will be established.

The outcome of this investigation will establish guidelines for remediation in other abandoned and inactive mine sites in the state of California. The immediate potential sites will be Afterthought Mine and Iron Mountain Mines. The project director is working with the owners of these two mines in California. Large scale laboratory test work has shown that there are no adverse impacts associated with the project.

## PROJECT DESCRIPTION

### 1. Statement of Problem

Acid Mine Drainage (AMD) is a serious environmental problem facing many inactive, abandoned and active mine sites throughout the United States. The impact of AMD is particularly serious in the Western United States, where mining activities generated huge amounts of mine wastes. Nearly two billion tons of waste rocks, tailings and leach residues are generated each year by mining and processing of ores (Brandon-Pignolet et al., 1990). The mining waste containing sulfide minerals such as pyrite, marcasite, and pyrrhotite oxidize readily in the presence of oxygen, water and microorganisms to produce acid mine drainage (Misra, et al., 1993). The rate of oxidation depends on the sulfide content, morphology, and bacterial activity (Doyle and Mirza, 1990). A simplified conceptual reaction pathway for acid mine drainage is shown in Figure 1. As can be seen, the formation of sulfuric acid and ferric ions enhances the solubilization of a number of heavy metals. It is estimated that more than 7,500 miles of rivers and streams are expected to be contaminated by AMD. In the state of California there are approximately 13 acid-generating mine sites. These sites need immediate attention in order to prevent damage to the watersheds, ecosystem, and habitat.



**Figure 1. Schematic of Acid Mine Drainage Reaction Path and Reaction Mechanism**

It is imperative that preventative measures must be taken to mitigate acid mine drainage. One preventive measure is the coating of sulfides. Over the past few years, DuPont has developed a novel coating method which is known as a passivation technology. Recently, DuPont Passivation Technology (De Vries, N.H.C., 1996 and Marshall et al., 1998) was donated to the University of Nevada, Reno (UNR) for further development of the process and commercialization. The passivation process can be used in-situ without removing the mining wastes, or it can be used ex-situ.

## 2. Passivation Process

The passivation process essentially creates an inert layer on the sulfide phase by contacting the sulfide with a basic permanganate solution to produce an inert manganese-iron oxide layer. This layer prevents contact with atmospheric oxygen during weathering of the sulfide rock, thus preventing sulfuric acid generation as shown in Figure 2. Another critical element of the process is the addition of trace amounts of magnesium oxide during pH adjustment (Mehta, Chen, and Misra, 2000). Magnesium oxide addition enhances the coating strength. Recently, the University of Nevada, Reno has developed a magnesium oxide process which is referred to as the UNR process. An Atomic Force Microscope (AFM) picture of a typical reactive pyrite ( $\text{FeS}_2$ ) after passivation using the process is given in Figure 3. For comparison, the same pyrite particle before passivation is also presented in Figure 3. The massive nature of passivation coating can be seen clearly from Figure 3.

## 3. Application of Passivation Technology for Newton Mine Tailings

Three different Newton Copper Mine tailings were tested over the past year. Passivation and acid-generating potential of the tailings with and without treatment were conducted using the standard protocols which were developed by the University of Nevada, Reno. Without any passivation (i.e., blank) the final pH of the solution was around 2.0 within the first five minutes, indicating that the tailings are indeed acid producing.

In the DuPont process, 10 grams of tailings were mixed with  $\text{CaO}$ ,  $\text{MgO}$  and dilute basic  $\text{KMnO}_4$  at pH 12.0. After mixing for three hours, tailings were filtered and washed. The passivated solid fractions were treated with 30%  $\text{H}_2\text{O}_2$  to determine the acid-generating potential of the passivated sample. The system pH after  $\text{H}_2\text{O}_2$  treatment was measured as a function of time. In the UNR process, the same amount of tailings were mixed with  $\text{MgO}$  and the pH of the suspension was adjusted to 10. For comparison, a series of control tests were conducted. In the control test, tailings were mixed with lime and the pH was adjusted to 12 with caustic. A similar conditioning and  $\text{H}_2\text{O}_2$  treatment were used. Acid-generating potential of the passivated and controlled sample as determined by hydrogen peroxide treatment is given in Figures 4-6. For comparison, pH of the tailings in water (blank) is also given in the same figure.

The control test, which was treated with lime and caustic (without any permanganate and/or magnesium oxide), showed a temporary and short time buffering action when subjected to the acid-generating potential test using hydrogen peroxide. The pH of the solution dropped to 3 after 200 minutes for samples 5-8 and 23-2. Only sample 22-3 took almost 1400 minutes to reach pH 3. On the other hand, both the DuPont Process and the UNR Process were successful in controlling acid generation using the hydrogen peroxide treatment procedures for all three samples (5-8, 22-3 and 23-2).

The above preliminary tests showed that the Newton Copper Mine tailings can successfully be passivated. On the basis of preliminary test work, a large-scale column passivation work was conducted using as-received rock sample in a packed column. After passivation, the passivated sample was taken for a long-term humidity cell experiment. Results obtained from the humidity cell are shown in Tables 1 and 2. As can be seen, the pH of the leachate obtained from the humidity cell experiment was always above 6.5 for the six weeks period. The sulfate concentration was also around 27-100. The UNR process using mixed oxide of calcium and magnesium showed similar results (see Table 2).

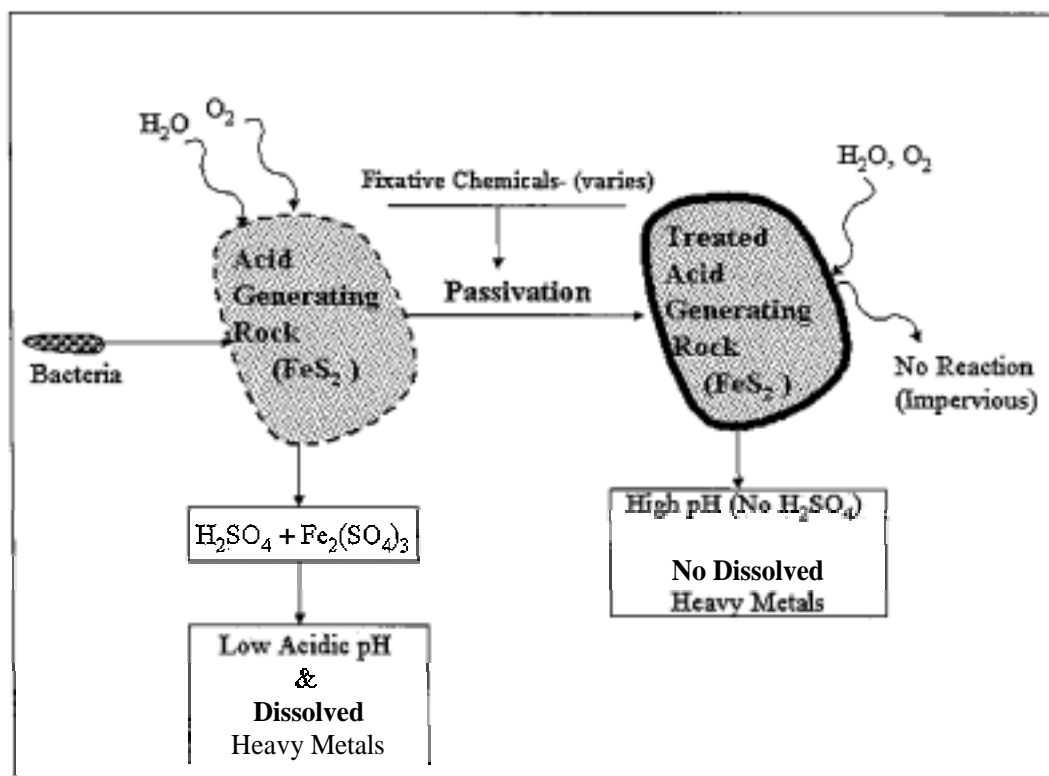


Figure 2. Acid Rock Passivation Process

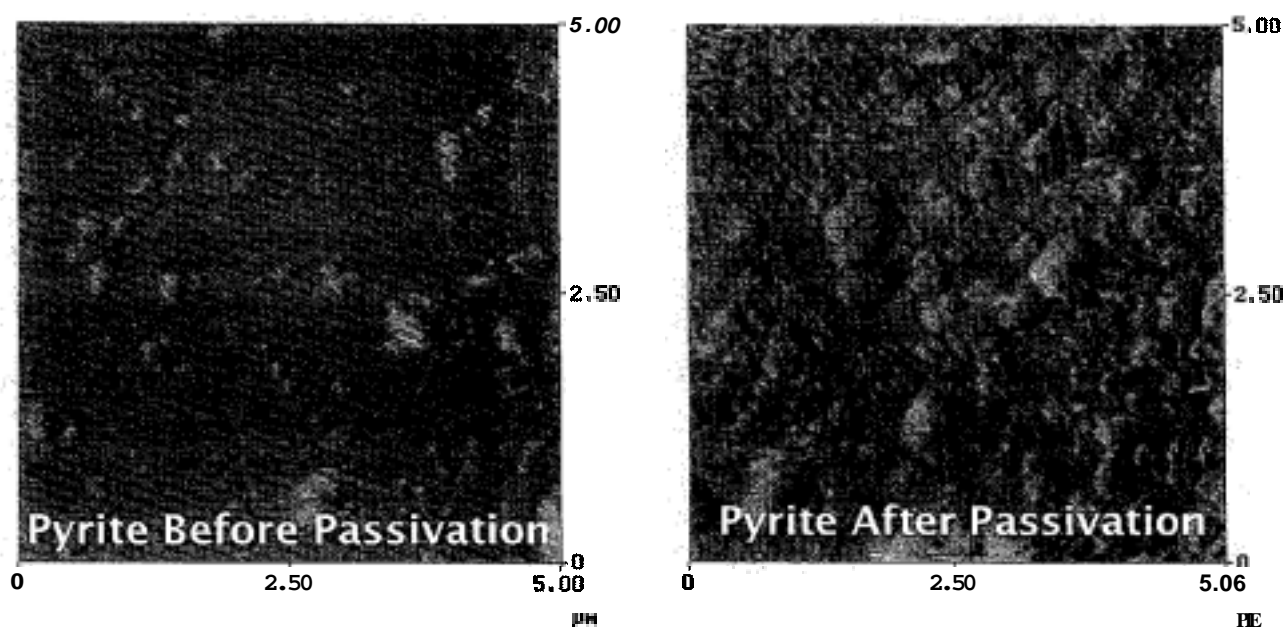


Figure 3. Atomic Force Microscope (AFM) picture of pyrite particle before and after passivation (5 micron scale)

Figure 4. Solution pH Values in Peroxide Test for Newton Sample-I (5-8)

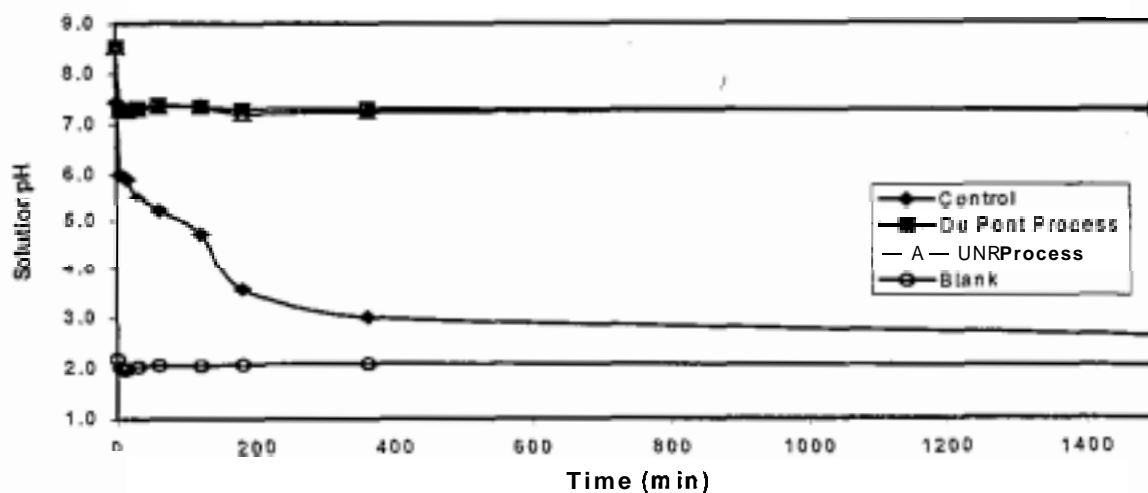


Figure 5. Solution pH Values in Peroxide Test for Newton Sample-2 (22-3)

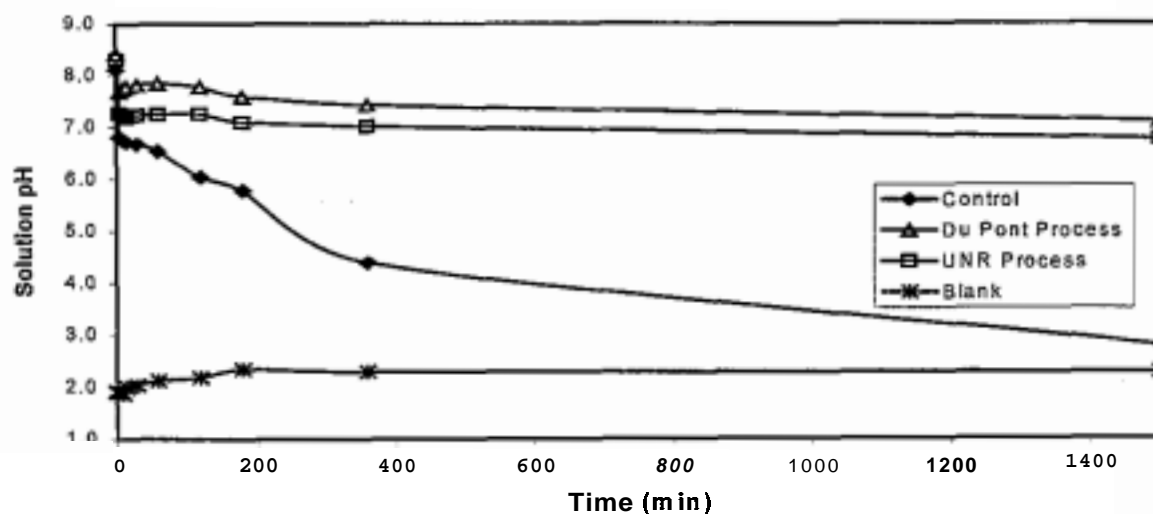
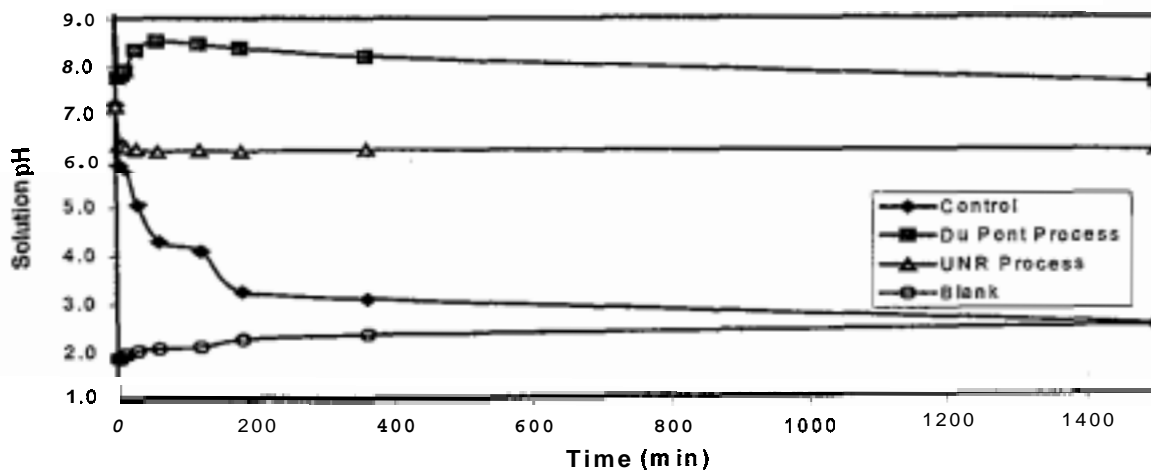


Figure 6. Solution pH Values in Peroxide Test for Newton Sample-3 (23-2)



**Table 1. Analysis Of Leachates Obtained From Humidity Cell Experiments**

Column Test: DuPont Process

Experimental Condition: Dosage: CaO: 2.0 kg/ton; MgO: 1.0 kg/ton; KMnO<sub>4</sub> : 0.044 kg/ton; pH=12

Sample	WEEK-1	WEEK-2	WEEK -3	WEEK -4	WEEK-5	WEEK-6
Constituents	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
<b>PH</b>	8.96	8.92	8.45	8.49	8.54	8.18
Sulfate	156	18.6	31.0	40.2	35.9	73.6

**Table 2. Analysis Of Leachates Obtained From Humidity Cell Experiments**

Column Test: UNR Process

Experimental Condition: Dosage: MgO: 3.5kg/ton; pH=10

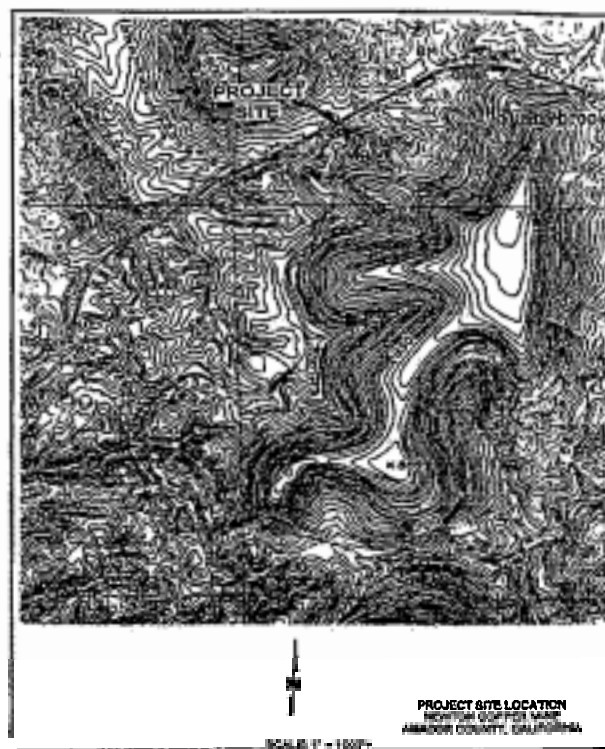
Sample	WEEK-1	WEEK -2	WEEK -3	WEEK -4	WEEK -5	WEEK -6
Constituents	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
<b>PH</b>	7.63	8.05	7.61	8.31	8.32	8.09
Sulfate	492	139	95.6	28.4	26.3	27.8

## PROPOSED SCOPE OF WORK

### 1. PROJECT LOCATION

The project objective is to demonstrate the application of passivation technology in the remediation and restoration of the Newton Copper Mine. The Newton Copper Mine operated as an active copper mine through 1946. It is an abandoned copper mine located in Amador County, six miles west of the city of Jackson, California, adjacent to Highway 88. The location of the site is shown in Figure 7. The parcel consists of approximately 64 acres. Approximately 15,000 cubic yards of tailings at this site are the source of acid mine drainage.

A tributary to Copper Creek originates about a half-mile northeast of the Newton Mine. The tributary is intruded by a portion of the mine tailings before reaching its confluence with Copper Creek about a half-mile downstream of the mine. Copper Creek travels northwest about 1.5 miles, where it joins Sutter Creek, which flows west to Dry Creek, a tributary to the Mokelumne River.



**Figure 7**

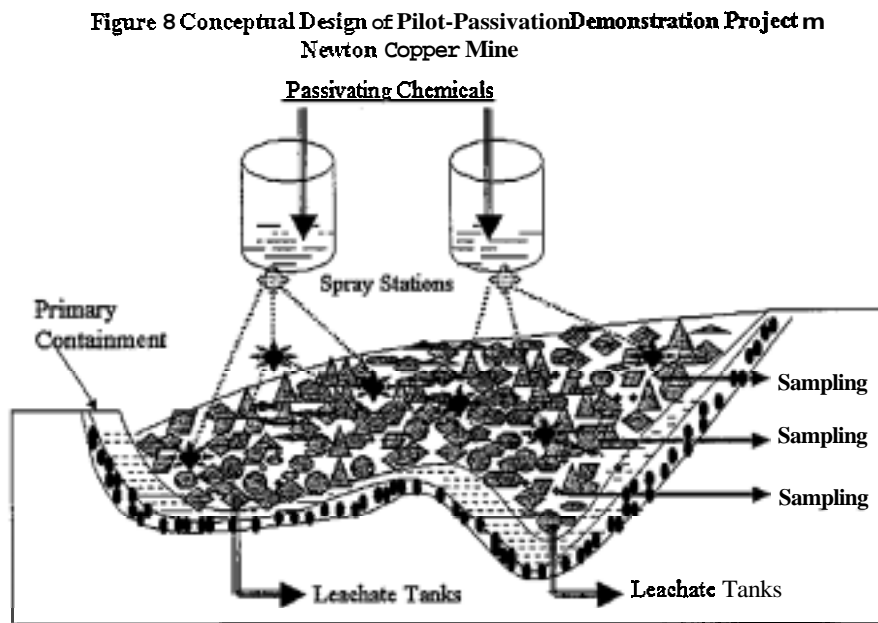
The Mokelumne River joins the San Joaquin River in the region of the Delta. The Newton Mine resides in the northeast quadrant of the 1130 acre Copper Watershed. The mine is an identified source of acid mine discharge into the tributary of Copper Creek, and **has** adversely impacted the wetland habitats in the vicinity of the mine. This pilot demonstration will consist of three pads: 1) control pad; 2) passivation pad – DuPont process; and 3) passivation pad – UNR process.

## 2. WORKPLAN

### Task 1: Pad Mobilization and On-site Pilot Tests

It is planned to prepare three pilot pads. One test pad will be treated with lime and will act **as** a control pad. Of the other two pads, one test pad will be treated by the UNR process, and the other by the Dupont process. The size of each pad will be approximately 30'x30'x25' and will hold 50-100 tons of waste tailings. Each pad will be surrounded with a basin having dimensions of 40'x40'. The basin will be lined with 60 mil HDPE geomembrane, and single-sided geocomposite drainage layer. Each pad will be equipped with 18-30 spray stations constructed out of modified sprinklers and irrigation drips. The chemicals will be stored in 500-gallon tanks. These pads will be covered with bird netting covers and surrounded with a 15' fence.

After the passivation and control treatment of the pads, the liquid discharge collected in the basin will be pumped and stored in three separate tanks. The discharge will be analyzed for pH and 32 dissolved heavy metals. The tanks will be moved to an off-site location for discharge. A schematic of the pilot operation pad is given in Figure 8.



### Task 2: Sample Collection and Monitoring

Leachate samples ~~from~~ three pilot pads will be collected every 24 hours for one month, and twice a week for an additional eleven months. The leachate will be analyzed by a certified laboratory for the following parameters:

- pH
- conductivity
- TDS
- 32 dissolved elements
- acidity
- alkalinity

In addition, solution migration, channeling and the effect of other geochemical variables will be studied. A twelve month monitoring is required to establish the effect of weathering in a natural environment. Depending upon the analytical results, incremental addition of fixative chemicals will be used.

### **Task 3: Long Term Weathering Tests**

In order to establish the uniformity and applicability of the passivation process, it is proposed to do column humidity tests. These tests will be done at the University of Nevada, Reno. Approximately 1 kg of representative waste rock will be collected from each pad at different points. These samples will be brought to UNR for testing. The representative control and passivated samples will be used in humidity cell set-up (ASTM-D5744) for long-term weathering. In these tests, dry air (one week), humid air (one week), and moisture (one week) will be used. After each cycle (three weeks), solution will be tested for pH, conductivity, acidity, sulfate and 32 dissolved elements. The humidity cell experiments will run for 52 weeks.

### **Task 4: Film Stability Evaluation Tests**

Selected, treated samples will be used in freezing/thawing and coating degradation tests at UNR. A series of experiments will be conducted to mimic what will happen if the passivated materials are encountered with low pH acidic discharge from another source at the mine site. In order to simulate that condition, passivated samples will be washed with water having different pH (i.e., 4 and 6). The leachate obtained from washing will be analyzed for dissolved constituent, as described before. In another experiment, oxidized pyrite waste rocks will be put on the top of the passivated waste rocks in the column. Water will be percolated through the pyrite bed, which will be in contact with passivated rocks. The stability of the passivated film under that condition will be established.

It is planned to vary the temperature between 0 and 35°C to see the effect of freezing and thawing cycles, as well as the effect of different microorganisms on the passivated materials. In addition to conventional chemical analysis, passivated materials will be examined by Scanning Electron Microscope (SEM), Energy Dispersive X-ray Analysis (EDXA), and Atomic Force Microscopy (AFM).

### **Task 5: Post-Remediation Activity**

As discussed earlier, two of the passivated pads will be monitored for a period of twelve months. Contingent upon the success of the process, one or both of the pilot plants will be used for ecological restoration. It is proposed to revegetate the passivated tailings using native perennial plants and seeding. Following the revegetation, the growth characteristics of the plants and flow-through the restored pilot pads will be monitored for an additional nine months. During that period, pH and concentration of dissolved metals will be monitored. This phase of the study will establish the aesthetic and ecological suitability of the process.

In addition, the controlled pad, which was prepared to give baseline information, will be treated with the passivated chemicals for final remediation and restoration. The controlled pad passivation will be initiated simultaneously with the restoration activity.

### **3. LINKAGES**

This project specifically addresses the ERP's strategic objective, targets, and programmatic actions associated with the loading of toxic pollutants and contaminants in all aquatic environments in the CALFED region. The common goal is the reduction of concentrations and loading of metal contaminants to eliminate the adverse impact to the aquatic environment. The project is also in direct accordance with the CALFED Ecosystem Restoration Program Goal No. 6, which includes the maintenance of water quality to eliminate toxic impacts on ecosystem organisms. These common goals will assist the overall CALFED objectives to improve the quality of the Bay-Delta ecosystem via ERP. Additionally, the restoration of the Newton Mine can be used to further demonstrate appropriate long-term preventative solutions to abandoned mine remediation in California. The Water Quality Program will need such studies as they progress into the enormous issue of restoration of abandoned mine lands. The Newton Mine exists under Cleanup and Abatement Order No. 98-178 issued by CVRWQCB on May 20, 1998. The proposed funding is requested to initiate the pilot operation which will lead to the complete prevention of AMD and restoration of the site.

### **4. SYSTEM-WIDE BENEFITS**

The system-wide benefits of this project will be largely related to water quality and the demonstration of appropriate ecosystem restoration methods for abandoned mine remediation. The improved health of the environment that was adversely impacted by the mine will benefit the overall ecosystem of the region by enhancing the natural processes vital to the balance of the system. The positive benefits of this project in the form of an improved aquatic environment will compliment other ecosystem restoration projects in the state of California.

#### Compatibility with Non-Ecosystem Objectives

This project will provide direct benefits for CALFED objectives addressing water quality. CALFED programs associated with watershed management are also benefited by this project. Benefits to third parties will include improved water quality for downstream users and aesthetic improvements to the mine site and surrounding environment.

### **5. LOCAL INVOLVEMENT**

The proposed project involves coordination with county and local government to maintain understanding of the proposed remediation/restoration project. Local environmental groups, conservancies, and local landowners are being notified to ensure awareness of the project and its associated impacts. Copies of Letters of Support from Congressman John T. Doolittle, Senator Tim Leslie, Assembly man Thomas Rico Oller and Director of General Services Administration Trevor Mottishaw of Amador County are included as an attachment. Organizations and groups that have been notified include:

- Amador County Board of Supervisors
- Mokulemne River Watershed Group
- Amador County RCD
- Office of Congressman J.T. Doolittle

The plan for public outreach will include the posting of public notices to concerned parties and public meetings conducted by the Amador County Board of Supervisors and the Amador County RCD. Potential third party impacts will be positive and realized as improvements to the health and aesthetic values of the ecosystem and water quality of the Copper Creek watershed.

## **6. BUDGET DESCRIPTION**

The total overall budget is given in Table 3. The total budgeted costs requested from CALFED for each task are listed in the Table 4. The University of Nevada, Reno, in collaboration with the Newton Mine Company, has spent almost \$60,000 for analytical work and laboratory testing of the mine tailings for passivation.

## **7. SCHEDULE DESCRIPTION**

Table 5 shows the start/completion dates for each tasks specified in the Scope of Work. The proposed Scope of Work is developed to be implemented in several phases and thus would be appropriately accommodated by incremental funding.

## **REFERENCES**

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**Table 3. Overall Proposed Budget (2 years)**

**A. SALARIES**

**Professional**

- Project director/Co-Principal Investigator \$ 61,500
- Research Staff 52,500

**Graduate Students**

15,000  
129,000

**B. FRINGE**

24% of the professional salary 27,360  
Graduate student (2%) 300  
27,660

**C. TRAVEL**

12,000

**D. SUPPLIES AND MATERIALS**

67,500

**E. SUBCONTRACTS**

Subcontract 1 (construction) 211,000  
Cherokee Chemicals/COUNSELTECH

Subcontract 2 (analysis) 25,000  
Bonded laboratory in California \$236,000

**F. TUITION**

16,000

**G. OVERHEAD**

44.3% of A, B, C, & D 104,618  
44.3% of the first \$25,000 of Subcontract 1 11,075  
44.3% of the first \$25,000 of Subcontract 2 11,075

Total Overhead 126,768

PROJECT TOTAL \$614,928

**Table 4. Proposed Detailed Budget by Task**

Year	Task	Direct Labor Hours	Subject to Overhead							Exempt from Overhead		Total Cost
			Salary	Benefits	Travel	Supplies & Expendables	Service Contracts	Sub-total	Overhead (44.3%)	Equipment	Graduate Student Fee Remission	
	Task 1 Pad- Mobilization and on-site pilot test											
Year 1	1.1 Planning & design	100	\$5,000	\$1,200	\$1,000	\$0	\$0	\$7,200	\$3,190	\$0	\$0	\$10,390
	1.2 Permitting	50	\$2,500	\$600	\$500	\$0	\$0	\$3,600	\$1,594	\$0	\$0	\$5,194
	1.3 Mobilization and construction	480	\$24,000	\$5,760	\$2,000	\$22,000	\$120,000	\$173,760	\$34,890*	\$0	\$4,000	\$212,650
	Task 2 2.1 Sample Collection and monitoring	1,000	\$30,000	\$7,200	\$3,000	\$18,000	\$10,000	\$68,200	\$25,782	\$0	\$0	\$93,982
	2.2 Analytical Work	0	\$0	\$0	\$1,000	\$5,000	\$25,000*	\$31,000	\$13,733	\$0	\$0	\$44,733
	Task 3 3.1 Long-term weathering-UNR	500	\$7,500	\$1,500	\$500	\$5,000	\$0	\$13,150	\$5,825	\$0	\$0	\$18,975
	3.2 Analytical Work- UNR	0	\$0	\$0	\$0	\$10,500	\$0	\$10,500	\$4,651	\$0	\$0	\$15,151
	Task 4 Film stability & evaluation	500	\$7,500	\$1,500	\$500	\$1,000	\$0	\$9,150	\$4,053	\$0	\$4,000	\$17,203
	Project Management	200	\$10,000	\$2,400	\$500	\$0	\$0	\$12,900	\$5,714	\$0	\$0	\$18,614
<b>Total Cost Year 1</b>		<b>2,830</b>	<b>\$86,500</b>	<b>\$17,460</b>	<b>\$9,000</b>	<b>\$61,500</b>	<b>\$155,000</b>	<b>\$329,460</b>	<b>\$99,432</b>	<b>\$0</b>	<b>\$8,000</b>	<b>\$436,892</b>

Year 2	Task 5											
	5.1 Post Restoration	100	\$5,000	\$1,200	\$500	\$0	\$50,000	\$56,700	\$2,968	\$0	\$4,000	\$63,668
	5.2 Monitoring	750	\$22,500	\$5,400	\$2,000	\$5,000	\$0	\$34,900	\$15,460	\$0	\$0	\$50,360
	5.3 Analytical	0	\$0	\$0	\$0	\$1,000	\$10,000	\$11,000	\$448	\$0	\$0	\$11,448
	5.4 Decommissioning	100	\$5,000	\$1,200	\$0	\$0	\$21,000	\$27,200	\$2,746	\$0	\$4,000	\$33,946
	Project Management	200	\$10,000	\$2,400	\$500	\$0	\$0	\$12,900	\$5,714	\$0	\$0	\$18,614
Total Cost Year 2		1,150	\$42,500	\$10,200	\$3,000	\$6,000	\$81,000	\$142,700	\$27,336	\$0	\$8,000	\$178,036
Total Project Cost		3,980	\$129,000	\$27,660	\$12,000	\$67,500	\$236,000	\$472,160	\$126,768	\$0	\$16,000	\$614,928

\* Construction – Subcontract overhead charged to first \$25,000 only

\*\* EPA/State California Laboratory for chemical analysis – Subcontract overhead charged to first \$25,000 only

**Table 5. Monthly Project Schedule For Two Years (After Project Initiation)**

Activities	First Year												Second Year											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Planning & Submittal	X	X																						
Agency Review & Modification		X	X																					
Permitting		X	X																					
Mobilization Project			X																					
Construction																								
Monitoring & Sample Collection				X	X	X	X	X	X	X	X	X	X	X		X								
Analytical				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Humidity Cell & Film Stability								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Post-Restoration																X	X	X	X	X	X	X	X	X
Decommissioning																								

## QUALIFICATIONS AND MANAGEMENT PLAN

The University of Nevada, Reno (UNR) will be responsible for administering the grant, developing project planning, and the collection and analysis of data. **Dr. M. Misra**, Director of the Center for Mineral Bioprocessing and Remediation, will be the project director. **Dr. Dirk Van Zyl**, Director of the Center for Mine Life Cycle, will be involved in the design of the pilot plant and the geo-technical aspect of the project. The contractual and financial part of the project will be administered by Mary Husemoller, Director of Sponsored Projects, and **Jerry Best**, Manager of Grants and Contracts, respectively. The actual on-site testing and engineering work will be conducted by Cherokee Chemical Company and COUNSELTECH. **Ms. Geraldine Cassinelli**, one of the owners of the Newton Mine, will be responsible for permitting and on-site engineering coordination work. A project management chart, along with specific individual responsibilities covering technical, administrative and project management, is shown in the project management chart (Figure 9).

**Dr. M. Misra** has over 19 years experience in the research and development of process remediation and control of acid mine drainage. **Dr. Misra** is Professor and Chairman of the Metallurgical and Materials Engineering department of the University of Nevada, Reno. He is also the Director for the Center for Mineral Bioprocessing and Remediation. He has six patents in the areas of heavy metals and the removal and treatment of acid mine drainage. He has improved the original DuPont passivation technology as applied to AMD. **Dr. Misra** has worked on several acid mine drainage projects including Iron Mountain Mines, Newton Copper Mine, and the Afterthought Mine, all in California. He has worked on other AMD projects involving Hecla Mining Company in Idaho, Brohm's operation in South Dakota and the Newmont Mining operation in Nevada. **Dr. Misra** will be the Director of the project.

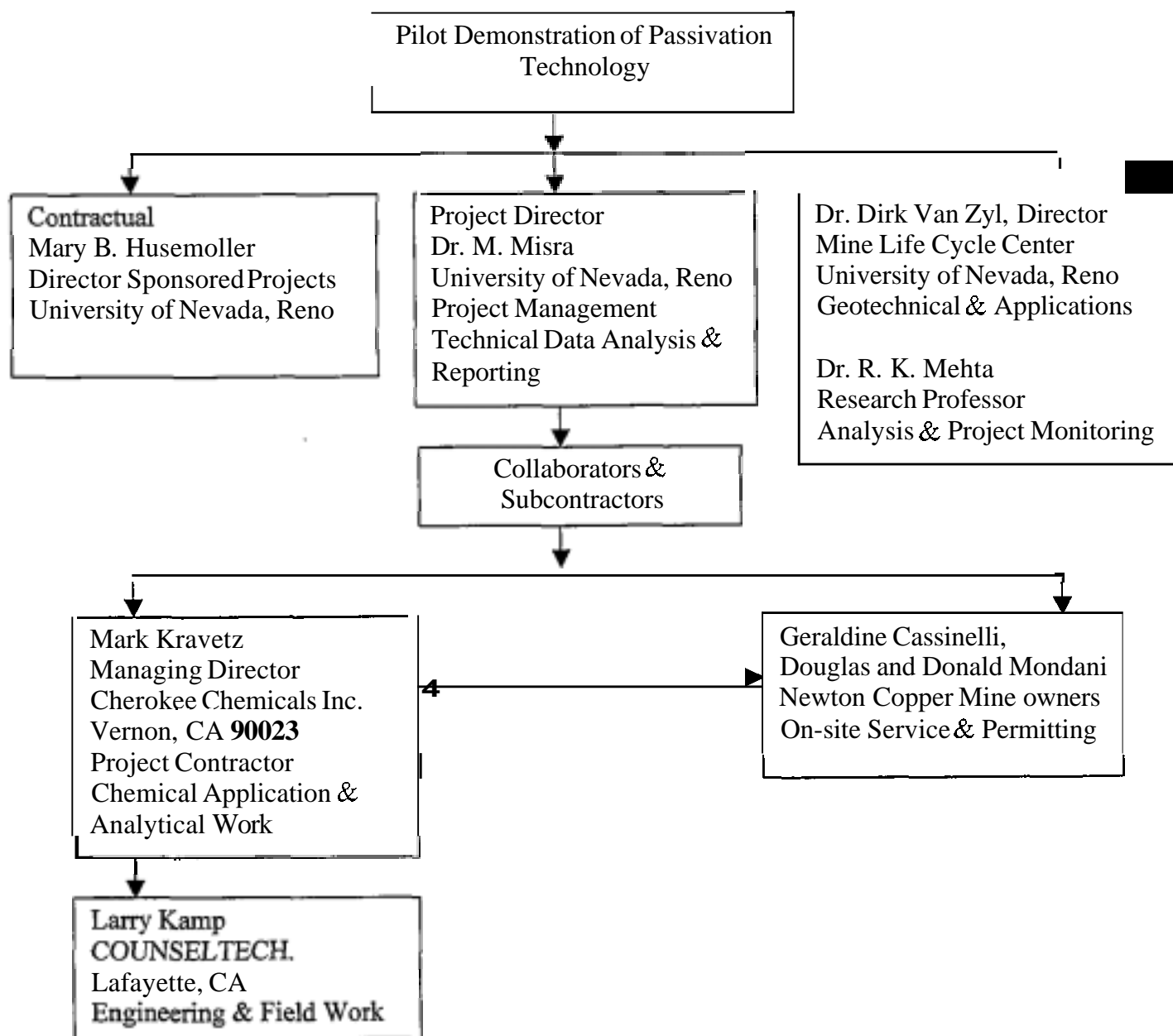
**Dr. Dirk Van Zyl** is the Director of the Mine Life Center at the Mackay School of Mines. **Dr. Van Zyl** has a Ph.D. in Civil Engineering. He is a registered professional engineer in twelve states, including the state of California. **Dr. Van Zyl** was Vice President of TRC Companies, Golden Associates and EIC Corporation. He has been the project manager for many mining related projects in North America, Europe, Southeast Asia and Latin America. He is working with Placerdome to apply passivation technology to control AMD at the Sunlight Mine in Montana.

**Dr. R. K. Mehta** has been involved in AMD and other mines related problems since 1988. **Dr. Mehta** is a Research Professor in the Center for Environmental Science and Engineering. He will be in-charge of analytical protocol, QA, and monitoring aspects of the project.

**Mark Kravetz** of Cherokee Chemical, Inc. is the Managing Director of Mining Applications. He has been involved in acid mine drainage and waste water treatment for over 15 years. **Mr. Kravetz** has worked directly with Newmont Mining, Barrick, Placerdome, and Hecla Mining Company. Cherokee Chemical Company will be the prime subcontractor to run the passivation demonstration on-site along with COUNSELTECH.

**Larry Kamp** is the President of COUNSELTECH. **Mr. Kamp** has designed many heap operations with appropriate instrumentation. **Mr. Kamp** will be involved in the construction of the passivated pads. D & E construction of VISALIA, California will work with COUNSELTECH.

**Figure 9. PROJECT MANAGEMENT CHART**





DEPUTY WHIP  
COMMITTEES:  
GOVERNMENT REFORM  
RESOURCES  
CHAIRMAN—SUBCOMMITTEE ON  
WATER AND POWER  
TRANSPORTATION AND  
INFRASTRUCTURE  
JOINT ECONOMIC COMMITTEE

Congress of the United States  
House of Representatives

1536 LONGWORTH HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515-0504  
(202) 225-2911

2130 PROFESSIONAL DRIVE SUITE 100  
ROSELIE, CA 95861-2708  
(916) 786-5820  
(908) 232-1336

Doolittle@hawaii.gov  
http://www.house.gov/doolittle

May 10, 2000

Mr. Steve Ritchie  
Acting Executive Director  
CALFED Bay Delta Program  
1416 9<sup>th</sup> Street, Suite 1155  
Sacramento, CA 95814

Dear Mr. Ritchie:

I am writing to request your support for a **CALFED grant** for a watershed restoration project along Highway **88** between Lone and Jackson in Amador County. The grant **would** allow the University of Nevada at Reno's (UNR) Mackay School of Mines to complete the field study and remediation of the Newton Copper **Mine** site using the passivation method.

The California Regional Water Quality Control Board Central Valley Region **has asked the** present **owners** of the property, Donald and Douglas Mondani and Gerri Cassinelli, to clean up the site. **The** water and **soil tests** are complete **and** a plan has been developed, but the cost of the reports and studies, along with the final cleanup and restoration **work** itself, have exceeded the financial means of the **property** owners.

The owners, in conjunction with UNR and Cherokee Chemical, are applying for a **grant** to complete **the** pilot program and **the** remediation. UNR **has** invested time and money to **the** project **and** has found the **passivation process** of old mine acid drainage cleanup to **work** well on mine materials from the Newton Copper Mine site. **As a result, this** project could serve as a new model method **of** environmental cleanup for the many mines in California.

I strongly urge you to approve this grant application.

Sincerely,

JOHN T. DOOLITTLE  
U.S. Representative

JTD:blj

MAY - 10' 00 (WED) 15:46

SENATOR TIM LESLIE

TEL: 916 783 5487

P. 002/003

COMMITTEES:

CHAIRMAN

FINANCE, INVESTMENT &  
INTERNATIONAL TRADE

VICE CHAIRMAN

APPROPRIATIONS

RURAL CAUCUS

MEMBER

INSURANCE

NATURAL RESOURCES AND WILDLIFE

WESTERN STATES LEGISLATIVE

FORESTRY TASK FORCE

SUBCOMMITTEES

INSURANCE SUBCOMMITTEE ON  
HEALTH CARE REFORM

NATURAL RESOURCES AND WILDLIFE  
SUBCOMMITTEE ON RIVER PROTECTION  
AND RESTORATION

Senate

California Legislature



TIM LESLIE  
SENATOR, FIRST DISTRICT

JOINT COMMITTEES:

FAIRNESS ALLOCATION AND  
CLASSIFICATION

LEGISLATIVE BUDGET

PRISON CONSTRUCTION  
AND OPERATIONS

SELECT COMMITTEES:

CALIFORNIA'S WINE INDUSTRY

GENETICS AND PUBLIC POLICY

PRISON MANAGEMENT

May 8, 2000

**CALFED** Bay Delta Program  
1416 Ninth Street, Suite 1155  
Sacramento, CA 95814

TO **WHOM** IT MAY CONCERN:

I am **writing** to convey **my** support **of** a proposal submitted **by** the owners of the **Newton** Copper Mine - **Gem** Cassinelli, Donald Mondani, and **Douglas Mondani**, and the University **of** Nevada. Metallurgical and Materials Engineering **in** collaboration with Cherokee Chemical for a pilot program and remediation of **the** Newton Copper Mine.

**The** Newton Copper Mine, adjacent **to** Highway **88** between the towns of Ione and Jackson, was established **in the** 1860's **as** a source of copper during periods of war. **The mine** was **last** worked in **1947**. In 1994, the California Regional **Water** Quality Control Board requested a clean-up of the mine acid drainage. Since **1995**, the owners have hired several consultants **to** develop a plan for remediation which is beyond the financial ability of the owners.

With recent research and patents secured **by** the University of Nevada, a new method of clean-up called passivation has been developed. **The** University of Nevada in Reno (UNR) **has** processed mine waste rock from the Newton Copper Mine and has achieved very favorable results in the laboratory setting. Phase **III** requires a field pilot project and Phase **IV** would incorporate the remediation of the mine site **using** passivation.

This mine **is an** ideal setting **as it is** a small mine, and it **is** close **and** easily **accessible** by UNR. Since the owners had a waste characterization done and a general plan developed **for the** clean-up, it allowed UNR to develop a plan easily. Abandoned and inoperative **mines** are spread throughout California and the Mother Lode. Mine owners and the state **of** California **are** faced with the overwhelming task of remediating **these** mines, primarily **to** protect **our** state's **water** supply. The **results** of this project could bring a **less** costly means of mine clean-up **throughout the** Mother Lode of California, thereby expediting clean-up of abandoned and inoperative mines **throughout** California.

Page 2

For these reasons, I urge CALFED to give this proposal every possible consideration.

Thank you in advance for your conscientious attention to this request.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Leslie", with a stylized flourish at the end.

**TIM LESLIE**  
Senator, First District

TL:cw

CAPITOL OFFICE  
P.O. BOX 942649  
SACRAMENTO, CA 94249-0004  
(916) 319-2004  
FAX: (916) 319-2104

DISTRICT OFFICE  
2999 DOUGLAS BLVD., SUITE 120  
ROSEVILLE, CA 95661  
(916) 774-4430  
FAX: (916) 774-4433

e-mail: Rico.Oller@asm.ca.gov



# Assembly California Legislature

**THOMAS "RICO" OLLER**

ASSEMBLYMAN, FOURTH DISTRICT

COMMITTEES:  
INSURANCE  
LABOR AND EMPLOYMENT  
NATURAL RESOURCES  
PUBLIC SAFETY  
SELECT COMMITTEE  
ON RURAL ECONOMIC  
DEVELOPMENT

May 5, 2000

Mr. Steven Richie  
Acting Director  
CALFED Bay Delta Program  
1416<sup>th</sup> Street, Suite 1155  
Sacramento, CA 95814

Dear Mr. Richie:

I am writing to support the request of a CALFED grant for an ecosystem restoration project on the Newton Copper Mine, located outside of Ione in Amador County. The funds provided would be used by the University of Nevada (UN) to use a new process called passivation to stop the spread of acid mine drainage.

The Newton Copper Mine was a large copper mine that was worked between 1860-1943. These operations left a large amount of tailings, which create a runoff of sulfuric acid when water contacts them. The acid redissolves heavy metals that are toxic to fish and other aquatic life. Copper Creek runs through the mine area, and it carries the runoff with it as it drains toward the Delta. The present property owners, who never operated the mine, are under order from the California Regional Water Quality Control Board to clean up the site, but they do not have the resources to do so. The University of Nevada has a new process called "passivation" that causes the tailings to become inert and stop the continued leaching of sulfuric acid into the environment. The property owners are eager to use this new process that could provide another method to clean up the spread of toxins from heavy metals.

Initial tests on the tailings have shown that passivation successfully changed the pH of the leachate. UN is anxious to have an opportunity to use this process on a larger scale and my constituents see this as an important step toward correcting the present environmental concerns. Due to the close proximity of the Newton Copper Mine to the Bay Delta itself, this would be a worthy ecosystem restoration project. It could also turn out to be a model for clean up of many other abandoned mine sites in California. I strongly urge you to approve this grant application.

I appreciate your consideration of this important matter.

Sincerely,

Thomas "Rico" Oller

OFFICE OF  
GENERAL SERVICES ADMINISTRATION

MAIL: 12200 Airport Road - Jackson, CA 95643 - (209) 223-8375 - FAX 223-0749 - E-MAIL - tmottishaw@co.amador.ca.us  
LOCATION: 12200 Airport Road - Mantell, CA



May 5, 2000

CALFED Bay Delta Program  
1416 9<sup>th</sup> Street, Suite 1155  
Sacramento, CA 95814

To Whom It May Concern:

This letter is in support of a proposal being submitted by the University of Nevada to perform field testing of the Newton Copper Mine site in Amador County which is owned by Mr. Douglas Mondani, Mr. Donald Mondani, and Mrs. Gerri Cassinelli. The Amador County Board of Supervisors has been and is supportive of the owners in their efforts to obtain the funding necessary for reclamation of the mine site.

The Newton Mine is an old wartime copper mine which is located adjacent to State Highway 88 between the cities of Jackson and Ione. Operation of the mine began in the 1860's and was a source of copper during wartime and operations ceased in 1947. The California Regional Water Quality Board requested the water drainage through the mine site be cleaned up by the owners of the property in 1994, even though the owners had never operated the mine. The owners had consultants complete water tests and a waste characterization report and an engineering plan. As a result of the reports, proposed reclamation costs were too expensive for the owners to pursue.

In an effort to remediate the existing problem, the University of Nevada has tested three different Newton Copper Mine tailings of the past six months using passivation technologies which have proven to be successful.

Much work has been performed by the owners to develop an acceptable plan. However, the high costs make it impossible for them to continue. Please give this proposal consideration and help us help you clean up the environment.

If you have any questions, please don't hesitate to contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read "Trevor Mottishaw".

Trevor Mottishaw  
Director

## Environmental Compliance Checklist

All applicants must fill out this Environmental Compliance Checklist. Applications must contain answers to the following questions to be responsive and to be considered for funding. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do any of the actions included in the proposal require compliance with either the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), or both?

YES

X  
NO

2. If you answered yes to #1, identify the lead governmental agency for CEQA/NEPA compliance.

Lead Agency

3. If you answered no to #1, explain why CEQA/NEPA compliance is not required for the actions in the proposal.

Proposal to conduct a field pilot operation of an experimental nature on two 10,000 lb. samples not involving the issuance or need for permits from the County.

4. If CEQA/NEPA compliance is required, describe how the project will comply with either or both of these laws. Describe where the project is in the compliance process and the expected date of completion.

5. Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?

YES

✓  
NO

If yes, the applicant must attach written permission for access from the relevant property owner(s). Failure to include written permission for access may result in disqualification of the proposal during the review process. Research and monitoring field projects for which specific field locations have not been identified will be required to provide access needs and permission for access with 30 days of notification of approval.

6. Please indicate what permits or other approvals may be required for the activities contained in your proposal. Check all boxes that apply.

**LOCAL**

Conditional use permit	—
Variance	—
Subdivision Map Act approval	—
Grading permit	—
General plan amendment	—
Specific plan approval	—
Rezone	—
Williamson Act Contract	—
cancellation	—
Other _____	
(please specify)	
None required	X

**STATE**

CESA Compliance	—	(CDFG)
Streambed alteration permit	—	(CDFG)
CWA § 401 certification	—	(RWQCB)
Coastal development permit	—	(Coastal Commission/BCDC)
Reclamation Board approval	—	
Notification	—	(DPC, BCDC)
Other _____		
(please specify)		
None required	—	

**FEDERAL**

ESA Consultation	—	(USFWS)
Rivers & Harbors Act permit	—	(ACOE)
CWA § 404 permit	—	(ACOE)
Other _____		
(please specify)		
None required	—	

DPC = Delta Protection Commission  
CWA = Clean Water Act  
CESA = California Endangered Species Act  
USFWS = U.S. Fish and Wildlife Service  
ACOE = U.S. Army Corps of Engineers

ESA = Endangered Species Act  
CDFG = California Department of Fish and Game  
RWQCB = Regional Water Quality Control Board  
BCDC = Bay Conservation and Development Comm.

**Land Use Checklist**

All applicants must fill out this Land Use Checklist for their proposal. Applications must contain answers to the following questions to be responsive and to be considered for funding. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Do the actions in the proposal involve physical changes to the land (i.e. grading, planting vegetation, or breaching levees) or restrictions in land use (i.e. conservation easement or placement of land in a wildlife refuge)?

YES

X  
NO

2. If NO to # 1, explain what type of actions are involved in the proposal (i.e., research only, planning only).  
Research & testing of laboratory method to render inert residual sulfide minerals which have the potential to pollute local streams.
3. If YES to # 1, what is the proposed land use change or restriction under the proposal?

4. If YES to # 1, is the land currently under a Williamson Act contract?

X  
YES

NO

5. If YES to # 1, answer the following:

Current land use  
Current zoning  
Current general plan designation

"AG" Exclusive Agriculture  
A-G Agricultural-General (40 ac. density)

6. If YES to #1, is the land classified as Prime Farmland, Farmland of Statewide Importance or Unique Farmland on the Department of Conservation Important Farmland Maps?

YES

X  
NO

DON'T KNOW

7. If YES to # 1, how many acres of land will be subject to physical change or land use restrictions under the proposal?

8. If YES to # 1, is the property currently being commercially farmed or grazed?

YES

NO

9. If YES to #8, what are

the number of employees/acre \_\_\_\_\_  
the total number of employees \_\_\_\_\_

**YES**

**NO**

12. If YES to # 10, answer the following:

---

.....

\_\_\_\_\_

**manage the property**

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**provide operations and maintenance services**

\_\_\_\_\_

**conduct monitoring**

\_\_\_\_\_

**YES**

NO

**YES**



16. If YES to # 15, describe \_\_\_\_\_

**NONDISCRIMINATION COMPLIANCE STATEMENT**

STD. 19 (REV. 3-95)

COMPANY NAME **BOARD OF REGENTS, UCCSN, FOR**  
**University of Nevada, Reno**

*mh* To the extent permitted by Nevada laws,  
The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless *Wf*  
specifically exempted, compliance with Government Code Section 12990(a-f) and California Code of  
Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the  
development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor  
agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for  
employment because of sex, race, color, ancestry, religious creed, national origin, physical disability  
(including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family  
care leave and denial of pregnancy disability leave,

**CERTIFICATION**

*I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.*

OFFICIAL'S NAME

Mary B. Husemoller, Director  
Sponsored Projects Admin.

DATE EXECUTED

5/11/00

EXECUTED IN THE COUNTY OF

Washoe, State of Nevada

PROSPECTIVE CONTRACTOR'S SIGNATURE

*Mary B. Husemoller*Mary B. Husemoller, Director  
Sponsored Projects Admin.

PROSPECTIVE CONTRACTOR'S TITLE

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

**BD. OF REGENTS, UCCSN, FOR**  
**UNIV. OF NEVADA, RENO**

STATE OF CALIFORNIA

## NONDISCRIMINATION COMPLIANCE STATEMENT

870 10 (REV. 3/95)

COMPANY NAME

Cherokee Chemical Company, INC.

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-2) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, physical disability (including HIV and AIDS), medical condition (cancer), age (over 40), marital status, denial of family care leave and denial of pregnancy disability leave.

## CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

Mark Kravetz

DATE EXECUTED

05-10-00

EXECUTED IN THE COUNTY OF

Los Angeles

PROSPECTIVE CONTRACTOR'S SIGNATURE



PROSPECTIVE CONTRACTOR'S TITLE

Managing Director

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

C.C.I. / Cherokee Chemical Company, INC.

Attachment D  
Terms and Conditions for State Proposition **204** Funds

This section provides terms and other conditions that will apply to contractual agreements for proposals receiving state Proposition 204 funds. Successful applicants receiving Proposition 204 funds will enter into a contract with the California Resources Agency. The specific terms and conditions that will apply to the contract will vary depending on the type of applicant (State agency, federal agency, other public entity, private for-profit, private non-profit) and the type of project receiving a grant (research/planning, construction, land acquisition).

The general contractual terms that apply to all Proposition 204 funds are set forth below. Additional State of California standard clauses will be required, depending on the type of applicant and the type of project. These additional State standard clauses are set forth at the end of this attachment. The applicability of the additional standard clauses is set forth in Table D-1.

All applicants should review the following lists of standard clauses. If an applicant cannot agree to any standard clauses, the applicant must disclose this disagreement in their proposal or the standard clauses will be deemed nonnegotiable. The State and NFWF reserve the right to refuse to alter any standard clauses.

1. Term of Agreement: The term of the Agreement will depend on the type of project and may range from 1 to 3 years. The Agreement shall not become effective until fully executed by the parties and approved by the Department of General Services.
2. Payment Schedule: No funds will be disbursed by the State or NFWF to Grantee without: (1) an executed copy of the Agreement; (2) receipt of an original invoice with supporting documentation; and (3) receipt and satisfactory completion of, or progress toward completion of, deliverables and/or phases of work as set forth in the Agreement, including quarterly financial and programmatic reports. Payments shall be in arrears within 30 days of receipt of an undisputed invoice by CALFED.

Required supporting documentation includes an invoice breakdown by task and line item, including task and line item budget balance. Additional supporting documentation such as payroll detail, receipts for equipment, or general ledger information may be required.

3. Performance Retention: Disbursements shall be made on the basis of costs incurred to date, less ten percent of the total invoice amount. Disbursement of the ten percent retention shall be made either: (1) upon the Grantee's satisfactory completion of a discrete project task (ten percent retention for task will be reimbursed); or (2) upon completion of the project and Grantee's compliance with project closure requirements specified by CALFED (ten percent retention for entire project will be disbursed).
4. Expenditure of Funds & Allocation Among Budget Items: Grantee shall expend funds in the manner described in the approved project budget. Any variance in the budgeted amount

among tasks, or between line items within a task, requires approval in writing by the State or NFWF. The total amount of ~~this~~ contract may not be increased except by amendment of ~~this~~ Agreement. Any increase in the ~~funding~~ for any particular budget item shall mean a decrease in the ~~funding~~ for one or more other budget items unless there is a written amendment to ~~this~~ Agreement.

5. Subcontracts: Grantees are responsible for all subcontracted work. Subcontracts must include all applicable terms and conditions as presented herein. The State or NFWF must approve all subcontracts and all amendments to subcontracts. Unless the subcontract was submitted to CALFED with the proposal, Grantee must obtain at least 3 competitive bids for ~~all~~ subcontracted work; ~~or~~ comply with the provisions of Government Code section 4525 et seq. as applicable; or obtain the State or NFWF's approval for non-compliance with these requirements.
6. Substitution: If Grantee chooses to substitute different subcontractors or employees for those subcontractors or employees approved for the project as part of the Scope of Work, Grantee must notify the State or NFWF and obtain the State's or NFWF's approval.
7. Conflict of Interest: Grantee shall comply with all applicable State laws and rules pertaining to conflict of interest including, but not limited to, Government Code section 1090 and Public Contract Code sections 10410 and 10411.
8. Standard of Professionalism: Grantee shall conduct all work consistent with the professional standards of the industry and type of work being performed under the Agreement.
9. Rights in Data: All data and information obtained and/or received under this Agreement shall be in the public domain. Grantee shall not sell or grant rights to a third party who intends to sell such product as a profit-making venture. Grantee shall have the right to disclose, disseminate and use, in whole or in part, any final form data and information received, collected, and/or developed under this Agreement, subject to inclusion of appropriate acknowledgment of credit to the State or NFWF, to the CALFED Program, and to all cost-sharing partners for their financial support. Grantee must obtain prior approval from CALFED to use draft data. Permission to use draft data will not be unreasonably withheld. CALFED will not disseminate draft data, but may make draft data available to the public upon request with an explanation that the data have not been finalized.
10. Acknowledgment of Credit: Grantee shall include appropriate acknowledgment of credit to the State or NFWF, to the CALFED Program, and to all cost-sharing partners for their financial support when using any data and/or information developed under ~~this~~ Agreement.  
*To the extent allowed by Nevada law*
11. Indemnification: The Grantee agrees to indemnify, defend, and save harmless the CALFED agencies, the State of California, the Resources Agency, the Department of Water Resources, and the National Fish and Wildlife Foundation and their officers, agents, and employees from

*mt*

any and all claims and losses accruing or resulting to any or all contractors, subcontractors, material persons, laborers, and any other person, firm, or corporation furnishing or supplying work services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation who may be injured or damaged by the Grantee in the performance of this Agreement.

12. Independent Status: Grantee, and the officers, agents, and employees of Grantee, in the performance of the Agreement, shall act in an independent capacity and not as officers or employees or agents of the State of California, NFWF, the CALFED agencies, the Resources Agency, or the Department of Water Resources.
13. Termination Clause: The State or NFWF may terminate this Agreement by providing notice to Grantee in writing and be relieved of the payment of any consideration to Grantee should Grantee fail to perform the covenants herein contained at the time and in the manner herein provided. The State or NFWF will reimburse Grantee for reasonable obligations incurred by Grantee in performance of this Agreement prior to the date of the notice to terminate. In the event of such termination, the State or NFWF may proceed with the work specified in this Agreement in any manner deemed proper by the State. The cost to the State shall be deducted from any sum due the Grantee under this Agreement, and the balance, if any, shall be paid the Grantee upon demand.
14. Assignment: Grantee may not assign this Agreement, in whole or in part, without the written consent of the State.
15. Integration Clause: No alteration or variation of the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein shall be binding on any of the parties hereto. The parties may amend this Agreement by mutual written consent and with approval by the State or NFWF.
16. Consideration: The consideration to be paid Grantee as provided in this Agreement, shall be in compensation for all of the Contractor's expenses incurred in the performance of this Agreement, including travel and per diem, unless otherwise expressly so provided.
17. Dispute Resolution: Any claim that Grantee may have regarding the performance of this Agreement including, but not limited to, claims for additional compensation or extension of time, shall be submitted to the Executive Director, CALFED, within thirty days of its accrual. CALFED and Grantee shall then attempt to negotiate a resolution of claim and process an amendment to this Agreement to implement the terms of any such resolution.
18. Severability: If any provision of this Agreement is held invalid or unenforceable by any court of final jurisdiction, it is the intent of the parties that all other provisions of this Agreement be construed to remain fully valid, enforceable, and binding on the parties.
19. Time is of the essence in this Agreement.

## FOR PROJECTS INVOLVING LAND ACQUISITION

The following terms will be required for projects that involve land acquisition, either in fee or by a conservation easement. CALFED may require certain of these terms to be included in the real property conveyance instruments for those projects involving land acquisition.

20. Purpose of Acquisition: The [describe interest in real property] that is the subject of this Agreement is being acquired by the Grantee pursuant to a grant of funds from the Resources Agency through the CALFED Bay-Delta Program for the purpose of implementing the CALFED Ecosystem Restoration Program. No use of the real property inconsistent with this purpose is permitted.
21. Approval of Land Acquisition Terms: The State shall approve the terms under which the interest in real property is being acquired pursuant to this Agreement.
22. Mitigation: The Grantee shall not use or allow the use of any portion of the real property acquired pursuant to this Agreement for mitigation to compensate for adverse changes to the environment elsewhere.
23. Fair Market Value: The purchase price of any interest in real property purchased under this Agreement shall not exceed the fair market value as established by an appraisal approved by the State.
24. Use, Management, Operation, and Maintenance: The Grantee shall use, manage, operate, and maintain the real property in a manner consistent with the purpose of the acquisition. The Grantee further assumes all management, operation, and maintenance costs associated with the real property, including the costs of ordinary repairs and replacements of a recurring nature, and costs of enforcement of regulations. The CALFED Program shall not be liable for any cost of such management, operation, or maintenance. The Grantee shall refrain from developing or otherwise using any other property it owns or controls in the vicinity of the real property in such a way as to interfere with or inconvenience the use, management, operation, or maintenance of the real property or to detract from the purpose of the acquisition. The Grantee may be excused from its obligations for management, operation, and maintenance only upon the written approval of the Executive Director of the CALFED Program, or its successor.
25. Transfer: The Grantee may not transfer the real property, or any interest in the real property, in whole or in part, without the approval of the Executive Director of the CALFED Program, or its successor.

TABLE D-1: PROPOSAL SUBMITTAL REQUIREMENTS AND STANDARD CONTRACT CLAUSES

		Services, Consulting Preconstruction, Research, Land Acquisition					Public Works, Construction				
Item <sup>1</sup>	Standard Clauses and Proposal Requirements <sup>2</sup>	State	Federal	Public	Non-profit	Private	State	Federal	Public	Non-profit	Private
PROPOSAL REQUIREMENTS											
19	Nondiscrimination Compliance			J	J	J			J	J	J
4021	Bidders Bond or <del>other</del> Security (if contract values ≥ \$107,000) <sup>3</sup>									✓	✓
4206	Non Collusion Affidavit								J	J	J
n/a	Proof of Contractor's License									✓	✓
CONTRACT REQUIREMENTS											
4100	Contracts with Public Entities			✓					✓		
4099	Service & Consultant Service Contracts with Nonpublic Entity				✓	✓				✓	✓
4099a	Additional Standard Clauses		J	J	J	J		✓	✓	✓	✓
4187	Interagency Agreements	✓					J				
4247	Contracts with United States		✓					✓			
4197	General Conditions for Public Works Contracts								✓	✓	✓
4196	Insurance Requirements								✓	✓	✓
18	Nondiscrimination Construction Contract Specifications								✓	✓	✓
807	Payment Bond								✓	✓	✓
156	Performance Bond								✓	✓	✓
n/a	Certificate of Insurance								✓	✓	✓

Legend State = State of California agencies, including State (California) Universities.

Federal = Federal agencies.

Public = Public entities, such as city, county, other local government entities, resource conservation districts, and out-of-state public entities.

Private = For-profit and non-profit organizations, and individuals.

<sup>1</sup> Item numbering refers to documents following this table.

<sup>2</sup> All contract terms and standard clauses apply to any subcontracts made by Contractor.

<sup>3</sup> Types of security include cashiers check, cash, certified check, or bidder's bond in an amount equal to 10 percent of the proposed amount.



State of California  
CONTRACTORS STATE LICENSE BOARD  
ACTIVE LICENSE



License Number **733203**

Entity **CORP**

Licensee Name **D & E CONSTRUCTION INC**

Qualification **B C61/D12**

Expiration Date **03/31/2001**



State of California

DEPARTMENT OF WATER RESOURCES

The Resources Agency

Agreement No. : \_\_\_\_\_

Exhibit: \_\_\_\_\_

**NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY  
BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS**

STATE OF CALIFORNIA )

COUNTY OF \_\_\_\_\_ ) ss

Mark Kravetz being first duly sworn, deposes and  
says

(name)

that he or she is MANAGING DIRECTOR of  
(position title)Cherokee Chemical Company, INC.  
(the bidder).

the party making the foregoing bid; that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED 05/11/00By [Signature]  
(Person signing for bidder)

Subscribed and sworn to before me on

MAY 11, 2000 by MARK KRAVETZ

DWR 4208 (New 4/90, Master Current 3/99)

Betty Lawrence  
(Notary Public)STATE OF NV  
COUNTY OF HUMBOLDT

STATE OF CALIFORNIA

DEPARTMENT OF WATER RESOURCES

THE INSOURCING AGENCY

## BIDDER'S BOND

We The University of Nevada, Reno will partake  
in the Scientific Application of technology

as PRINCIPAL, and  
Cherokee Chemical Company, Inc. will partake  
in the ACTUAL PERFORMANCE OF WORK

as SURETY, are held and firmly bound unto the State of California in the penal sum of TEN PERCENT (10%) OF THE TOTAL AMOUNT OF THE BID of the Principal above named submitted by said Principal to the State of California, acting by and through the Department of Water Resources, for the work described below, for the payment of which sum in lawful money of the United States, well and truly to be made, to the Director of the Department to which said bid was submitted, we bind ourselves, our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

In no case shall the liability of the surety here under exceed the sum of \$ 60,000

## THE CONDITION OF THIS OBLIGATION IS SUCH,

That whereas the Principal has submitted the above mentioned bid to the State of California, as aforesaid, for certain construction specifically described as follows, for which bids are to be opened at

SACRAMENTO, California, on 05-15-00  
(Insert name of city where bids will be opened) (Insert date of bid opening)

for PASSIVATION AND CONTROL OF ACID MINE  
DRAINAGE AT THE NEWTON COPPER MINE

Copy here the exact description of work, including location, as it appears on the proposal

NOW, THEREFORE, If the aforesaid Principal is awarded the contract and, within the time and manner required under the specifications, after the prescribed forms are presented to him for signature, enters into a written contract, in the prescribed form, in accordance with the bid, and files two bonds with the Department, one to guarantee faithful performance and the other to guarantee payment for labor materials, as required by law, then this obligation shall be null and void; otherwise, it shall be and remain in full force and virtue.

IN WITNESS WHEREOF, We have hereunto set our hands and seals on this 11<sup>th</sup>  
day of MAY 2000

\_\_\_\_\_  
(Seal)  
\_\_\_\_\_  
(Seal)  
\_\_\_\_\_  
(Seal)  
Principal  
\_\_\_\_\_  
(Seal)  
\_\_\_\_\_  
(Seal)  
\_\_\_\_\_  
(Seal)  
Surety

Address 3540 E. 26TH ST VERNON, IA 50023

NOTE: Signature of those executing for the surety must be properly acknowledged.

DWR 1021 (Rev. 8/94)

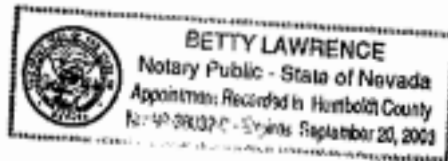
**NEVADA INDIVIDUAL ACKNOWLEDGMENT**

State of Nevada  
County of Humboldt } ss.

This instrument was acknowledged before me on this  
the 11<sup>th</sup> day of May, 2000, by

(1) MARK KRAVETZ  
Name of Signer

(2) and \_\_\_\_\_  
Name of Signer



Betty Lawrence  
Signature of Notary Public

**OPTIONAL**

*Though the information in this section is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.*

**Description of Attached Document**

Title or Type of Document: BIDDER'S BOND

Document Date: 5/11/00 Number of Pages: 1

Signer(s) Other Than Named Above: N/A

RIGHT THUMBPRINT OF SIGNER #1
Top of thumb here

RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here

## FEDERAL ASSISTANCE

2. DATE SUBMITTED

Applicant Identifier

## 1. TYPE OF SUBMISSION:

Application

☐ Construction☒ Non-Construction

Preapplication

☐ Construction☐ Non-Construction

## 3. DATE RECEIVED BY STATE

State Application Identifier

SAI Exempt

## 4. DATE RECEIVED BY FEDERAL AGENCY

Federal Identifier

## 5. APPLICANT INFORMATION

Legal Name:

Board of Regents, UCCSN, for Univ. Of NV, Reno

Organizational Unit:

Metallurgical &amp; Materials, MSM

Address (give city, county, state, and zip code):

University of Nevada, Reno

OSPA / MS 325

Ross Hall, Reno, NV 89557-0240

Name and telephone number of person to be contacted on matters involving this application (give area code)

Dr. M. Misra

775-784-1603

## 6. EMPLOYER IDENTIFICATION NUMBER (EIN):

88-600024

## 7. TYPE OF APPLICANT: (enter appropriate letter in box)

I

A. State

B. County

C. Municipal

D. Township

E. Interstate

F. Intermunicipal

G. Special District

H. Independent School Dist.

I. State Controlled Institution of Higher Learning

J. Private University

K. Indian Tribe

L. Individual

M. Profit Organization

N. Other (Specify) \_\_\_\_\_

## 8. TYPE OF APPLICATION

☒ New☐ Continuation☐ Revision

If Revision, enter appropriate letter(s) in box(es)

☐☐

A. Increase Award

B. Decrease Award

C. Increase Duration

D. Decrease Duration Other (specify):

## 10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER:

-

TITLE:

## 12. AREAS AFFECTED BY PROJECT (Cities, Counties, States, etc.):

California, Amador County

## 9. NAME OF FEDERAL AGENCY:

CALFED

through Dept. of Energy

## 11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

Pilot Demonstration of Passivation  
Technology for Restoration of Newton  
Copper Mine

## 13. PROPOSED PROJECT

## 14. CONGRESSIONAL DISTRICTS OF:

Start Date

1-5-2001

Ending Date

4-30-2003

a. Applicant

NV 2

b. Project

CA 4

## 15. ESTIMATED FUNDING:

a. Federal

\$ 614,928<sup>00</sup>

b. Applicant

\$ 00

c. State

\$ 00

d. Local

\$ m

e. Other

\$ m

f. Program Income

\$ .m

g. TOTAL

\$ 614,928.-

## 16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?

a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE  
AVAILABLE TO THE STATE EXECUTIVE ORDER 12372  
PROCESS FOR REVIEW ON:

DATE \_\_\_\_\_

b. No. ☒ PROGRAM IS NOT COVERED BY E.O. 12372  
☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE  
FOR REVIEW

## 17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?

☐ Yes If "Yes," attach an explanation.☒ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, A U DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT, THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Type Name of Authorized Representative

Mary B. Husemoller

b. Title

Director, Spons. Proj. Adm.

c. Telephone Number

775-784-4040

d. Signature of Authorized Representative

Mary B. Husemoller

e. Date Signed

5/11/00

## ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project(0348-0040), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award: and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 USC. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin: (b) Title IX of the Education Amendments of 1972, as amended (20 USC. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex: (c) Section 504 of the Rehabilitation

Act of 1973, as amended (29 USC. §794), which prohibits discrimination on the basis of handicaps: (d) the Age Discrimination Act of 1975, as amended (42 USC. §§6101-6107), which prohibits discrimination on the basis of age: (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse: (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism: (g) §§523 and 527 of the Public Health Service Act of 1912 (42 USC. §§290 dd-3 and 290 ee 3), as amended, relating to confidentiality of alcohol and drug abuse patient records: (h) Title VIII of the Civil Rights Act of 1968 (42 USC. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing: (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made: and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 USC. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

# BUDGET INFORMATION - Non-Construction Programs

OMB Approval No.0348-0044

## SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1.		\$	\$	\$	\$	\$
2.						
3.						
4.						
5. Totals		\$	\$	\$	\$	\$

## SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
a. Personnel	\$ 129,000	\$	\$	\$	\$
b. Fringe Benefits	27,660				
c. Travel	12,000				
d. Equipment	0				
e. Supplies	67,500				
f. Contractual	236,000				
g. Construction					
h. Other Tuition	16,000				
i. Total Direct Charges (sum of 6a-6h)	488,160				
j. Indirect Charges	126,768				
k. TOTALS (sum of 6i and 6j)	\$ 614,928	\$	\$	\$	\$
7. Program Income	\$	\$	\$	\$	\$

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Standard Form 424A (Rev. 7-97)

Prescribed by OMB Circular A-102

SECTION C - NON-FEDERAL RESOURCES				
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8.	\$	\$	\$	\$
9.				
10.				
11.				
12. TOTAL (sum of lines 8-11)	\$	\$	\$	\$

SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ 436,870	\$ 109,217.50	\$ 109,217.50	\$ 109,217.50	\$ 109,217.50
14. Non-Federal					
15. TOTAL (sum of lines 13 and 14)	\$ 436,870	\$ 109,217.50	\$ 109,217.50	\$ 109,217.50	\$ 109,217.50

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT				
(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16.	\$ 44,507.75	\$44,507.75	\$ 44,507.75	\$ 44,507.75
17.				
18.				
19.				
20. TOTAL (sum of lines 16-19)	\$ 44,507.75	\$44,507.75	\$ 44,507.75	\$ 44,507.75

SECTION F - OTHER BUDGET INFORMATION	
21. Direct Charges:	22. Indirect Charges:
23. Remarks:	

9. will comply, as applicable, with the provisions of the Davis-Bacon Act (40 USC. §§276a to 276a-7), the Copeland Act (40 USC. §276c and 18 USC. 5874), and the Contract Work Hours and Safety Standards Act (40 USC. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 USC. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 USC. 557401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 USC. §§469a-1 et seq.).
14. will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 USC. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. will comply with the Lead-Based Paint Poisoning Prevention Act (42 USC. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL  <i>Mary B. Husemoller</i>	TITLE <b>Mary B. Husemoller, Director</b> <b>Sponsored Projects Admin.</b>
APPLICANT ORGANIZATION <b>BOARD OF REGENTS, UCCSN, FOR</b> <b>University of Nevada, Reno</b>	DATE SUBMITTED  <b>5/11/2000</b>



May 8, 2000

Dr. M. Misra  
Professor and Chair  
Metallurgical and Materials Science Engineering  
Mackay School of Mines  
University of Nevada, Reno  
Reno, NV 89557

REF: CALFED Bay-Delta Proposal "Pilot Scale Demonstration of Passivation Technology  
for Restoration of Newton Copper Mine"

Dear Dr. Misra:

The Cherokee Chemical Co., Inc. is willing to work with the University of Nevada, Reno as a subcontractor in the proposed project. Cherokee Chemical Co., Inc. will employ a licensed contractor in the construction of the pilot operation. The subcontract for passivation will be \$211,000 and the subcontract for analytical work will be \$25,000.

If you need additional information or if you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Kravetz", is written over a light gray rectangular background.

Mark Kravetz